

Remarks

The office action mailed May 19, 2006 has been carefully reviewed and these remarks are responsive thereto. Applicants herein amend claims 10, 12, 21, 23, 24, 31, 33 and 34 and cancel claims 11, 22 and 32. No new claims have been added, and no new matter has been introduced. Upon entry of amendments herein, claims 1-10, 12-21, 23-31 and 33-34 are pending in this application.

Preliminarily, Applicants acknowledge with appreciation the indication that the application contains allowable subject matter. Specifically, claims 5, 6, 17, 18, 28 and 29 were deemed allowable if rewritten in independent form to incorporate all the features of their respective base claims and any intervening claims. For reasons explained in more detail below, Applicants also believe the remaining claims are allowable.

In particular, claims 1-4, 7-16, 19-27 and 30-34 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Appl. Pub. No. 2003/0171936 to Sall et al. ("Sall") in view of U.S. Patent No. 5,343,251 to Nafeh ("Nafeh"). Applicants respectfully traverse.

Claim 1 recites, in part, "passing each of a plurality of the frames through a filter bank" and "computing a modified spectral flux value for at least a subset of the plurality of frames." The office action correctly states on page 2 that "Sall does not disclose the use of selectively recording music by passing each frame through a filter bank, [or] computing a modified spectral flux value..." The office action then asserts on page 3 that the use of spectral flux values is well-known and that "[i]t would have been obvious to one of ordinary skill in the art to combine the teachings of Sall and Nafeh to obtain the audio stream segmenting method using a filter bank and recording the segments." The office action does not specifically state that it would have been obvious to modify the Sall method so as to use (or include the use of) modified spectral flux values. More important, the office action has not made the required showing in support of such an argument.

In order to reject a claim based on teachings from combined references, the office must at least identify the proposed combination with some reasonable degree of specificity. Otherwise, there is no way an applicant can determine whether a person of ordinary skill in the art would have been motivated to make such a combination. For example, without knowing what the

supposed combination is, an applicant cannot assess whether that combination would actually function.¹ As another example, an applicant must know details of the proposed combination to determine whether that combination would change the principle of operation of the modified prior art reference. See MPEP § 2143.01 VI.

These points are of particular concern in the present application. Sall describes a complex three-stage segmentation procedure, but the office action does not explain *how* the method of Sall would have been modified to include use of a modified spectral flux. Sall uses "first-grade characteristic calculation" to calculate "audio features vectors from the input audio stream," and those "features vectors define characteristics of audio signals." Sall paragraph [0022]. In paragraphs [0036] through [0041], Sall appears to describe the "audio features vector" as including formant frequencies (Λ_i), first and second reflection coefficients (K^1 , K^2), energy of the prediction error coefficient (E^0), and preemphasized energy ratio coefficient (E^1). The office action does not indicate whether modified spectral flux should be substituted for one of these quantities, used in combination with these quantities, or included in the Sall method in some other fashion. Sall goes on to explain that its method includes a "second-grade characteristic calculation" in which is formed a "sequence of statistic features vectors from the sequence of audio features vectors[; the] statistic features vectors define statistic features of the first-grade features." Sall paragraph [0022]. The statistic features vector is described in paragraphs [0044] through [0047]:

¹ To combine teachings of prior art references, there must have been some reasonable expectation of success. See, e.g., MPEP § 2143. Logically, this implies that there actually would have been some way of combining the references that would have resulted in a working device or method. There must also have been a workable combination in order to avoid rendering the prior art unsatisfactory for its intended purpose. See MPEP § 2143.01 V.

[0044] The statistical features vector \vec{V} consists of two sub-vectors, the first of them consists of:

$$V_{1j} = \frac{1}{M} \sum_{i=1}^M \Delta_{i,j}, j = 1 \dots S$$

$$V_{1+S} = \frac{1}{M} \sum_{i=1}^M (\lambda_i - V_{1j}^2), j = 1 \dots S$$

[0045] and the second of these sub-vectors consists of:

$$V_{11} = \left(\max_M (K_1^2) - \min_M (K_1^2) \right) \times \frac{1}{M} \sum_{i=1}^M K_1^2$$

$$V_{12} = \frac{1}{M} \sum_{i=1}^M E_{11}^0 \times \frac{1}{M} \sum_{i=1}^M \left(E_{11}^0 - \frac{1}{M} \sum_{i=1}^M E_{11}^0 \right)^2$$

$$V_{13} = \sum_{i=2}^S \left| E_{11}^0 - E_{11}^0 \right| \times \sum_{i=1}^M \left| E_{11}^0 \right|$$

-continued

$$V_{14} = \max_{i=1 \dots M} \{E_{11}^0\} - \min_{i=1 \dots M} \{E_{11}^0\}$$

$$V_{15} = \sum_{i=1}^M B(i), \text{ where } B(i) = \begin{cases} 1, K_1^0 > \text{predefined thresholds} \\ 0, \text{otherwise} \end{cases}$$

[0046] where M is a number of frames in one window.

[0047] As the result, there are the statistic feature vectors (15 characteristics at all).

The office action does not explain how modified spectral flux would have been used in any of the above formulae. A third (or "decision-making") stage "analyses variation of the second grade features and performs definition of the segments boundaries basing on that analysis." Sall paragraph [0022]. The decision making stage includes substages for "initial segmentation," "accurate segmentation" and "internal markers definition." Sall paragraphs [0048]-[0066]. The office action also fails to explain how any of these substages (some of which include detailed formulae that make use of "Formants Frequencies" values) would have been altered to use a modified spectral flux instead of (or in addition to) the "Formants Frequencies" used by Sall.

Because the office action does not indicate how a person of ordinary skill in the art would have introduced modified spectral flux into the Sall method, it has failed to establish a motivation for such a combination. Moreover, and even if spectral flux was well-known, it does not follow that a person of ordinary skill would have thought to use spectral flux in a method that relies heavily on "formants frequencies." Indeed, Sall indicates otherwise by acknowledging a prior art method that utilized spectral flux (see Sall paragraph [0018]), but then proceeding to describe a system that does *not* use spectral flux.

Because the office action has not established a motivation to modify Sall in order to teach all features of claim 1, claim 1 is allowable. Claims 2-4 and 7-9 depend from claim 1 and are allowable for at least the same reasons as claim 1, as well as based on additional features recited therein.

For example, claim 2 recites passing each of the plurality of frames through a filter bank comprises passing each of the plurality of frames through five Infinite Impulse Response (IIR) filters. The office action acknowledges at page 3 that neither Sall nor Nafeh discloses the use of five IIR filters. The office action then states:

IIR filters are one of the most common and simplest filters known (e.g., a single resistor and a single capacitor having a common node). Therefore, Official Notice is taken that the use of IIR filters is notoriously well-known and certainly within the scope of one of ordinary skill in the art.

However, this does not establish obviousness. As explained in MPEP § 2143.01 IV., "[a] statement that modifications of the prior art to meet the claimed invention would have been well within the ordinary skill of the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references" [emphasis in original; internal quotes and citation omitted].

As another example, claim 7 recites "locating the start frame in a buffered portion of the audio stream." The office action states on page 4 that Nafeh, "discloses the use of storing (in a memory) and buffering the segmented data [at] col. 6, lines 51-66 and col. 5, lines 52-63, respectively)." The office action then states that the examiner "acknowledges that Nafeh buffers parameters of the audio stream (i.e., not the stream itself), however, as broadly interpreted, this is deemed to be functionally equivalent since the buffering is used for identical purposes..." Applicants respectfully disagree. Applicants note that the parameters buffered in Nafeh are not used for purposes "identical" to the buffering recited by claim 7. The parameters buffered in Nafeh are used as part of the process of deciding whether to record a program being received. In contrast, in the invention as recited in claim 7, an audio stream portion is buffered so as to be available for copying into another memory if a recording control signal is received from a remotely located terminal. Even if the buffering in Nafeh was for a purpose identical to the

buffering of claim 7, however, Nafeh still describes a process step that is *different* from that of claim 7. The office action has not indicated why a person skilled in the art would have been motivated to modify the Nafeh system to buffer an actual program stream instead of buffering parameters derived from that stream. Accordingly, claim 7 is allowable for at least these additional reasons.

Claim 10 has been amended to recite, "calculating a modified spectral flux value for at least a subset of the plurality of frames of the audio transmission using the filtered frames." Accordingly, claim 10 and dependent claim 12 are allowable for reasons similar to those applicable to claim 1.

Claims 13 recites a machine-readable medium having machine-executable instructions for performing steps of a method similar to that recited in claim 1. Accordingly, claim 13 and dependent claims 14-16, 19, and 20 are allowable for at least the same reasons as claim 1.

Claim 21 has been amended similarly to claim 10 to recite, "calculating a modified spectral flux value for at least a subset of the plurality of frames of the audio transmission using the filtered frames." Accordingly, claim 21 and dependent claim 23 are allowable for reasons similar to those applicable to claim 1.

Claim 24 recites a recording unit for recording broadcast programming comprising a processor configured to execute instructions for performing steps of a method similar to that recited in claim 1. Accordingly, claim 24 and dependent claims 25-27, and 30 are allowable for at least the same reasons as claim 1. Applicants note that claim 24 has been amended to correct a minor typographic error (specifically, including an omitted "to").

Claim 31 has been amended similarly to claim 10, reciting a recording unit configured to "calculate a modified spectral flux value for at least a subset of the plurality of frames of the audio transmission using the filtered frames." Accordingly, claim 31 and dependent claim 33 are allowable for reasons similar to those applicable to claim 1.

Claim 34 recites, e.g., a processor configured to execute instructions so as to compute a modified spectral flux value, and is allowable for reasons similar to those applicable to claim 1.

It is respectfully submitted that this application is in condition for allowance. Should the Examiner believe that anything further is desirable in order to place the application in even better

form for allowance, the Examiner is invited to contact Applicants' undersigned representative at the below-listed number.

Respectfully submitted,

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